30 TAC Ch. 288
Rule No.

Water Conservation Plan

BMP No.

Section 1. Minimum Requirements

30 TAC
288.2(a)(1)(A)

1.0 Utility Profile

The City of Fort Worth Water Department served more than 580,000 residents in 2004, and this population is projected to grow to more than 800,000 by the year 2015. The City also provides treated water to 29 wholesale customers, which amounts to 305,000 additional residents. This service area is currently served by four water treatment plants. The City is charged with the operations of these plants and the associated treated water pumping systems. The current treatment capacity for the year 2005 is outlined in Table 1-1 below:

Table 1-1: 2005 Treatment Plant Capacity*

Treatment Plant (in million gallons per day (mgd))	Design Capacity (mgd)	Reliable Pumping Capacity (mgd)
Rolling Hills, est. 1972	200	185
North Holly, est. 1922	80	70
South Holly, est. 1952	100	80
Eagle Mountain, est. 1992	70	65
Total	450	400

**Source: Fort Worth Water Department Water Master Plan, 2005.*

The City purchases water from the Tarrant Regional Water District (TRWD). This water is from four major sources, as seen in Figure 1.1 on the following page:

1. The West Fork of Trinity River via Lake Worth, Eagle Mountain Lake, and Lake Bridgeport;
2. Clear Fork of the Trinity River via Lake Benbrook; (A pipeline connects Lake Benbrook to the Rolling Hills Water Treatment Plant to supplement supply to that plant. A pump station on the Clear Fork of the Trinity River also supplies the Holly Water Treatment Plant.)
3. Cedar Creek Reservoir, located approximately 75 miles southeast of Fort Worth; and
4. Richland Chambers Reservoir, located approximately 75 miles southeast of Fort Worth.

The City has a wastewater treatment capacity of 166 mgd at the Village Creek Wastewater Treatment Plant in east Fort Worth.

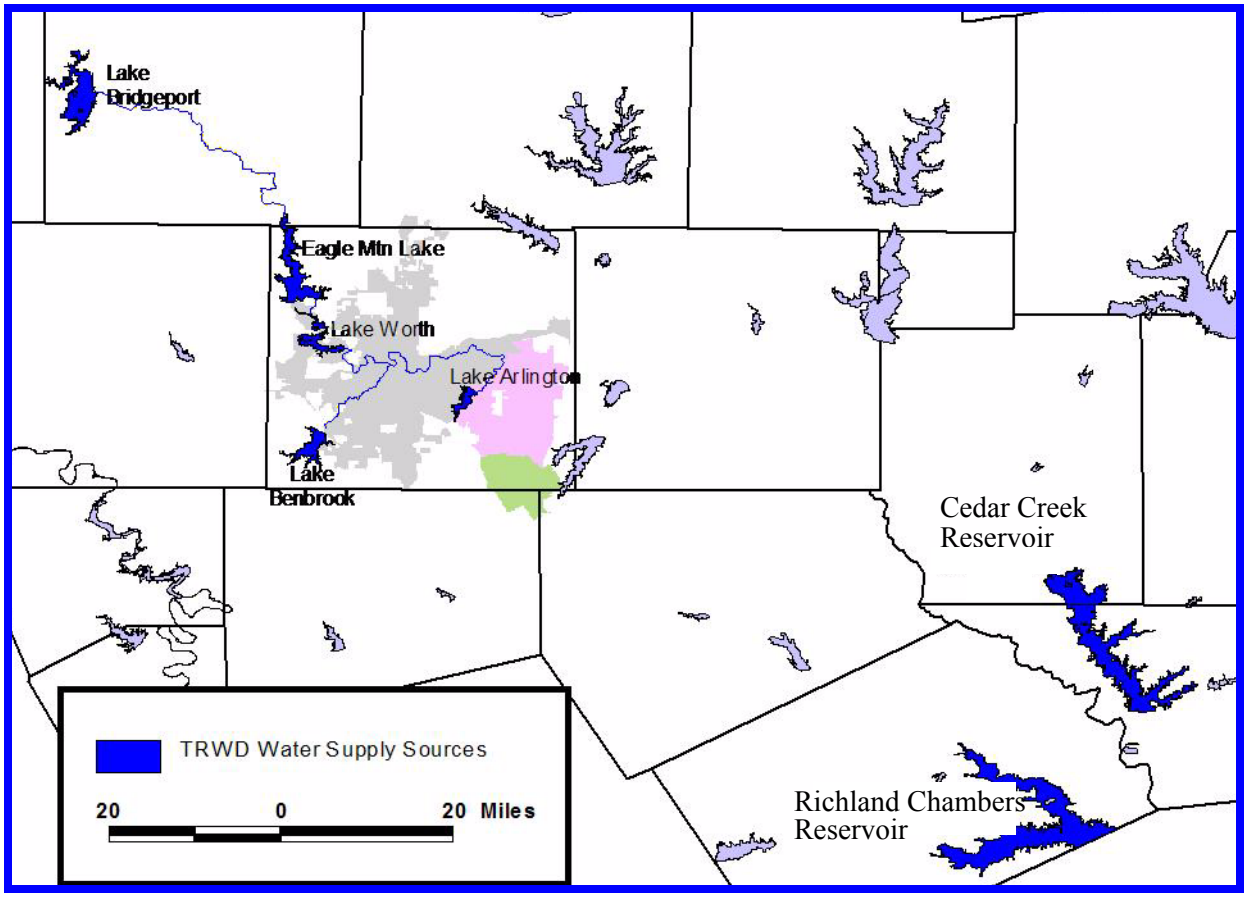

Figure 1.1. Tarrant Regional Water District Supply Sources.

30 TAC 288.2(a)(1)(B)

1.1 Conservation Goals

BMP 15

The City, led by its Conservation Team, will set the bar for conservation standards with its plan to achieve significant conservation savings without burdening the customer with extra costs while still generating enough water savings to extend the life of the existing supply. The initial demand reduction goals developed in 2004 are shown in Table 1-2 below. This table also includes additional goals for reducing system leakage and reflects residential and total system gallons per capita per day (gpcd).

Table 1-2: Initial Performance Indicator Goals

Desc.	Units	2001	2005	2010	2015
Total water use	GPCD	210	200	190	180
Residential water use	GPCD	103	98	93	88
Total water use	Gals per connection per day	730	695	660	645
Real losses	Gals per mile per day	7090	6500	6000	5750
Real losses	ILI	5.47	5.25	5.00	4.75
Avg. resulting demand proj.	Acre-ft (thousands)		195	215	230

The goals are based on the recommendations of the Texas Water Conservation Implementation Task Force which suggest a 1% reduction in gallons per capita per day per year. It should be noted that all the performance indicators outlined above are developed assuming a year of average rainfall.

For a complete analysis of the Best Management Practices (BMPs), refer to tables 1-3 and 1-4 on the following pages. It should be noted that all these guidelines are voluntary.

Table 1-3:

BMPs 1-21

Table 1.3 Water Conservation Best Management Practices Implementation Schedule

		Implementation Schedule					
BMP	Description	Currently Implemented	Implement before 2010	Implement before 2015	Not Implemented before 2015	Implemented through plumbing code and Energy Act	Not Applicable
1	System Water Audit and Water Loss	✓ 2002					
2	Water Conservation Pricing	✓ 1994					
3	Prohibition on Wasting Water	✓ 1994					
4	Showerhead, Aerator and Toilet Flapper Retrofit					✓ 1992	
5	Residential Toilet Replacement Programs					✓ 1992	
6	Residential Clothes Washer Incentive Program					✓ 1992	
7	School Education	✓ 1990					
8	Water Survey for Single-Family and Multi-Family Customers			✓			
9	Landscape Irrigation Conservation and Incentives			✓			
10	Water Wise Landscape Design and Conversion Programs		✓				
11	Athletic Field Conservation		✓				
12	Golf Course Conservation		✓				
13	Metering of All New Connections and Retrofit of Existing Connections	✓ 1980					
14	Wholesale Agency Assistance Programs			✓			
15	Conservation Coordinator	✓ 1990					
16	Water Reuse	✓ 1999					
17	Public Information BMP	✓ 1983					
18	Rainwater Harvesting and Condensate Reuse				✓		
19	New Construction Graywater BMP				✓		
20	Park Conservation BMP		✓				
21	Conservation Programs for Industrial, Commercial, and Institutional Accounts		✓				

Detailed BMP information source: Texas Water Conservation Implementation Task Force Report to the 79th Legislature (November 2004)

BMPs 1-21

Table 1-4:

Table 1.4 Best Management Practices Cost-Effectiveness Estimates

BMP	Description	Estimates: Anticipated Savings 2010 (MGD)	Anticipated Savings 2015 (MGD)	Anticipated costs 2010 ($ per Year)	Anticipated costs 2015 ($ per Year)	Cost / 1000 gallons 2010	Cost / 1000 gallons 2015	Rank for Expenditure (201
	Plumbing Code Initiated							
5	Residential Toilet Replacement Programs	2	2	$0	$0	$0.00	$0.00	PL code
6	Residential Clothes Washer Incentive Program	0	0	$0	$0	$0.00	$0.00	PL code
4	Showerhead, Aerator and Toilet Flapper Retrofit	0.25	0.1	$50,000	$25,000	$0.55	$0.68	PL code + (2)
	Cost for Existing and Additional Programs							
2	Water Conservation Pricing	6	8	$50,000	$50,000	$0.02	$0.02	1
1	System Water Audit and Water Loss	2.5	4	$1,000,000	$1,000,000	$1.10	$0.68	3
21	Conservation Programs for Industrial, Commercial, and Institutional Accounts	1	2	$400,000	$600,000	$1.10	$0.82	4
12	Golf Course Conservation	0.5	0.75	$250,000	$250,000	$1.37	$0.91	5
16	Water Reuse *,**	20.1	30.15	$1,100,000	$1,200,000	$1.00	$0.96	6
7	School Education	0.5	0.5	$100,000	$200,000	$0.55	$1.10	7
10	Water Wise Landscape Design and Conversion Programs	0.5	0.5	$200,000	$200,000	$1.10	$1.10	7
9	Landscape Irrigation Conservation and Incentives	0.2	1	$100,000	$400,000	$1.37	$1.10	7
20	Park Conservation BMP	0.5	0.5	$250,000	$250,000	$1.37	$1.37	10
11	Athletic Field Conservation	0.4	0.8	$400,000	$400,000	$2.74	$1.37	11
3	Prohibition on Wasting Water	0.2	0.4	$110,000	$240,000	$1.51	$1.64	12
8	Water Survey for Single-Family and Multi-Family Customers	0	0.25	$0	$150,000	$0.00	$1.64	13
13	Metering of All New Connections and Retrofit of Existing Connections	1	1	$1,000,000	$1,000,000	$2.74	$2.74	14
	Necessary Programs - no Associated Savings							
14	Wholesale Agency Assistance Programs	0	0	$50,000	$50,000	$0.00	$0.00	n/a
15	Conservation Coordinator	0	0	$75,000	$85,000	$0.00	$0.00	n/a
17	Public Information BMP	0	0	$50,000	$100,000	$0.00	$0.00	n/a
	Programs not recommended (RWPG)							
18	Rainwater Harvesting and Condensate Reuse	0	0	$0	$0	$0.00	$0.00	n/s
19	New Construction Graywater BMP	0	0	$0	$0	$0.00	$0.00	n/s

** Water Reuse cost includes component of treatment, distribution and wholesale purchase costs*

*** Water Reuse component not used to calculate reductions in gpcd*

Detailed BMP information source: Texas Water Conservation Implementation Task Force Report to the 79th Legislature (November 2004)

Although the industry standard for analysis of water consumption is gpcd, the preferred performance indicator for the whole system is gallons per connection per day. This is a more easily definable value and will not vary as greatly as gpcd if there are variations in climate, thereby allowing more accurate comparisons of data between years.

30 TAC 288.2(a)(1)(C)

1.2 Water Savings Targets

Refer to Table 1-2 in the previous section for five- and 10-year water savings targets. The targets have been set to reduce maximum demand on the system. This maximum demand was projected during the recent Master Planning and is shown below in Figure 1.2.

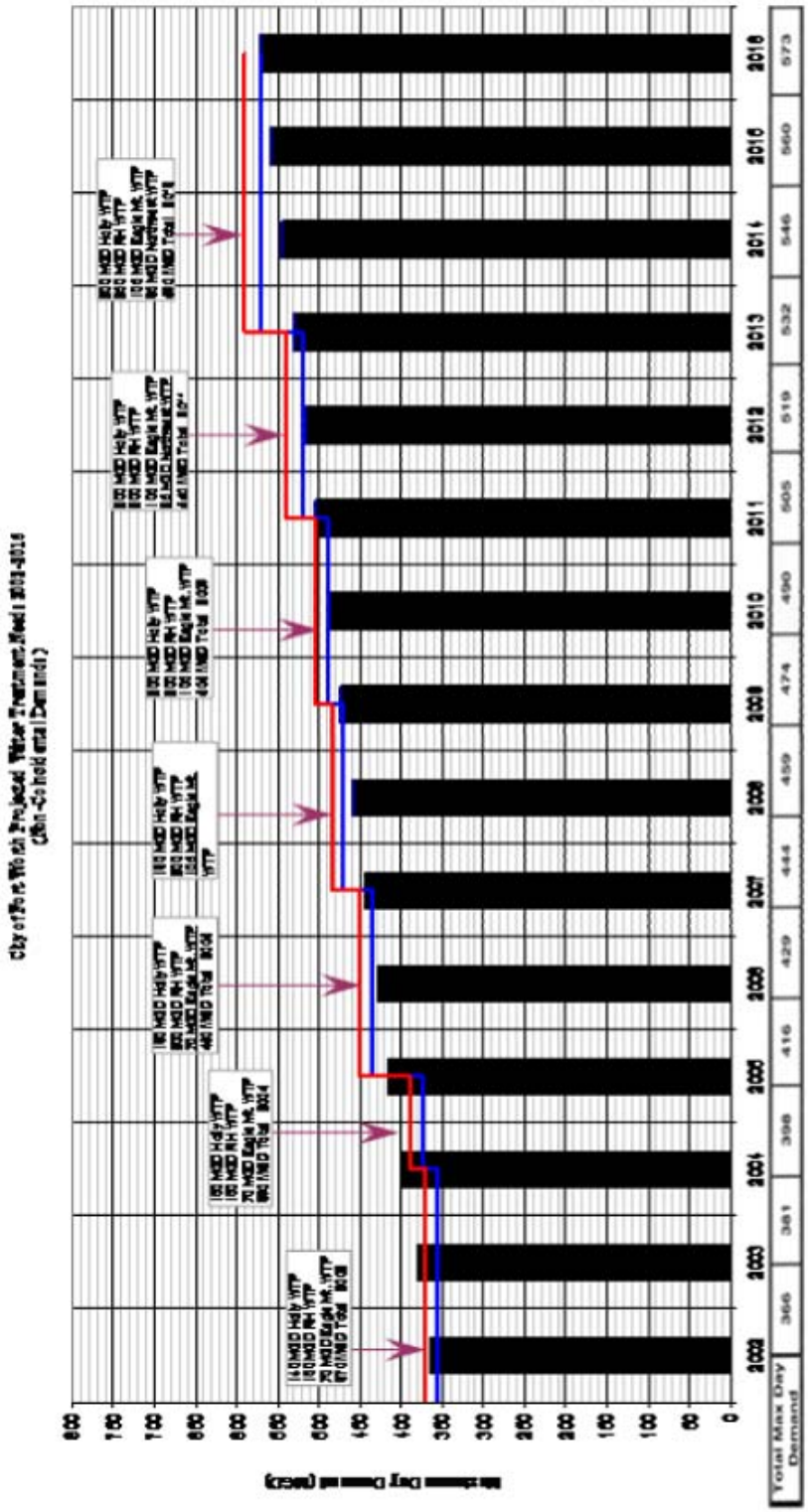

Figure 1.2. Fort Worth Treatment capacity expansion plans (Source: Fort Worth Water Department Water Master Plan, 2005).

30 TAC
288.2(a)(1)(D)(E)

1.3 Metering Issues

BMP 13

Programs for universal metering, meter testing, meter repair, and periodic meter replacement are already in place and have been developed using American Water Works Association (AWWA) standards. Meter size distribution in Fort Worth is broken down in Table 1-5.

Table 1-5: Meter Size Distribution

Meter Size	Total Number
.75”	159,491
1”	22,571
1.5”	3,856
2”	5,803
3”	587
4”	325
6”	298
8”	101
10”	48
12”	2
16”	5
18”	2

Source: Financial Year 2004 Statistical Report

The City will implement a meter exchange program that provides for the annual replacement of meters in the system that do not register the correct amount of water flowing through them. This program will increase revenues and water accountability. Funding for the meters will come from the amount allocated for infrastructure replacement. Meter replacement will take place as described below:

Meter Infrastructure Replacement

1. Identify and report active ¾- and 1-inch meters that register less than 200 cubic feet of flow and active 1 ½-inch or greater meters that register less than 1500 cubic feet of flow for three consecutive months.
2. Compare the meter-reading report with the flow report to determine which meters appear to be functioning improperly.
3. After all valid reasons for low flow at a location have been identified, the remainder can be assumed to be non-functioning and can be scheduled for replacement.

30 TAC 288.2(a)(1)(F)

1.4 System Water Audit (Non-Revenue or Unaccounted-For Water)

BMP 1

Fort Worth has conducted the first International Water Association (IWA) standard water audit in the state of Texas. The system water audit is the overall figure that can be used to monitor the total level of non-revenue water in the system. It is a complex and difficult task. There are many variables which influence the revenue and non-revenue components of Fort Worth's water system. The audit involves many of the Water Department divisions, including Engineering, Customer Services, and Operations. It evaluates the marginal costs (purchase of water from TRWD as well as treatment and distribution costs) and costs of service, so that the analyses have sound figures with which to develop the cost-benefit scenarios. The City conducts this audit annually.

1.4.1 Real Losses

Real losses are direct losses from the system through leakage from the infrastructure and overflows out of the system.

1.4.2 Apparent Losses

Apparent losses are paper losses which result from meter error, billing errors, illegal use, and other unbilled uses such as Fire Department.

1.4.3 Indicators of Performance

In the past, indicators of water system performance have generally been poor and incomplete. Most systems currently use only the percent-unaccounted-for water method to analyze their efficiency. This is not a good performance indicator.

The City has developed internal regulations and targets which match and exceed the new standards required by the TCEQ and proposed by the TWDB. Even more importantly, the performance indicator approach provides an internal accountability for specific water system tasks which will improve the performance and efficiency of the system in the long-term.

The audit and its associated performance indicators will be integrated into the City's conservation plan. The plan will be updated on a regular basis with specific portions such as the targets and goals being updated every year so that all the operational departments can begin to assess their water supply performance in a more quantitative way.

30 TAC 288.2(a)(1)(G)

1.5 Public Education and Information

BMP 7, 17

In addition to its existing efforts to educate the public with both water bill inserts and educational events promoting water conservation, the City has plans to establish a Customer Advisory Committee to include representation from a spectrum of customer classes and City departments. The goal of the committee will be to promote community awareness of the City's plans.

The City currently provides education programs for grades 3 through 5 in schools within the Fort Worth Independent School District. The programs incorporate the following themes: Waterama for 3rd Grade, Major Rivers for 4th Grade, and Waterwise for 5th Grade. The program is intended to increase use of these curricula not only among Fort Worth ISD schools but also among the 13 other school districts which

operate within Fort Worth's city limits in addition to all the school districts within the wholesale customer boundaries.

It is intended that the program be incorporated regionally through interaction with the Tarrant Regional Water District and that large wholesale customers develop cost-effective public education programs.

The City will also form a Customer Advisory Committee to discuss, assess and provide direction for the conservation programs outlined in this document. The committee will include residential, commercial, industrial, institutional, irrigators, wholesale customers, and any other interested customers.

1.6 Water Rate Structure

30 TAC 288.2(a)(1)(H) 288.2(a)(3)(A)

BMP 2

The City of Fort Worth has existing, conservation-oriented water rate structures in place. The City continues to refine rate structures to improve their effect on water conservation and to manage cost of service more effectively. This is done by analyzing the trends of use by customer class and associating increases in rates proportionally to those classes which place the most demands upon the water system.

In the next five years, the City will conduct additional assessment and consider increasing tiers for the Commercial Class. The City is also performing detailed analyses of Industrial and Irrigation users to consider nonpromotional conservation rates to match those groups' usage characteristics.

1.6.1 Current Rate Structures

The City's current rate structure consists of the following four categories:

- Residential
- Commercial
- Industrial
- Irrigation

Each customer is assessed a meter charge based on meter size. There is an additional usage charge. The rates adopted and implemented effective January 2005 for the Residential customer class include a conservation rate structure. Fort Worth measures in cubic feet (cf).

Table 1-6: Residential Water Rates

First 1,000 cf	**$1.77 per 100 cf or 748 gallons**
Next 2,000 cf	**$2.21 per 100 cf or 748 gallons**
More than 3,000 cf	**$2.90 per 100 cf or 748 gallons**
Irrigation	**$2.24 per 100 cf or 748 gallons**

Table 1-7: Commercial Water Rates

First 250,000 cf	**$1.93**
More than 250,000 cf	**$1.46**
Irrigation	**$2.24**

Table 1-8: Industrial Water Rates

First 250,000 cf	$1.78
More than 250,000 cf	$1.46
Irrigation	$2.24

Table 1-9: Monthly Meter Charges

Meter Size	Service Charge
5/8" or 3/4"	$5.50
1"	$8.00
1-1/2"	$14.50
2"	$22.00
3"	$47.00
4"	$82.00
6"	$180.00
8"	$310.00
10"	$485.00

1.6.2 Cost-Based Rate Structure

Currently, the City bases its rates on cost of service for each customer class. To realize the true cost of service, the peaking factors for each customer class need to be analyzed. The current structure does use basic peaking factors, but this does not yet fully account for the peaking characteristics. The higher the peak, the more that class will be required to pay because they are the ones driving the need for the new infrastructure which is sized to meet peak day demands.

Figure 1.3 shows an initial review of the peak demands associated with each of the different rate classes. This data shows that the irrigation class has the highest peaking factor, followed closely by the residential class. Because of this, these customer classes will be the first to be reviewed regarding their peaking-factor-based cost-of-service changes. These rate structure improvements will be studied, and equitable rates will be implemented before 2010.

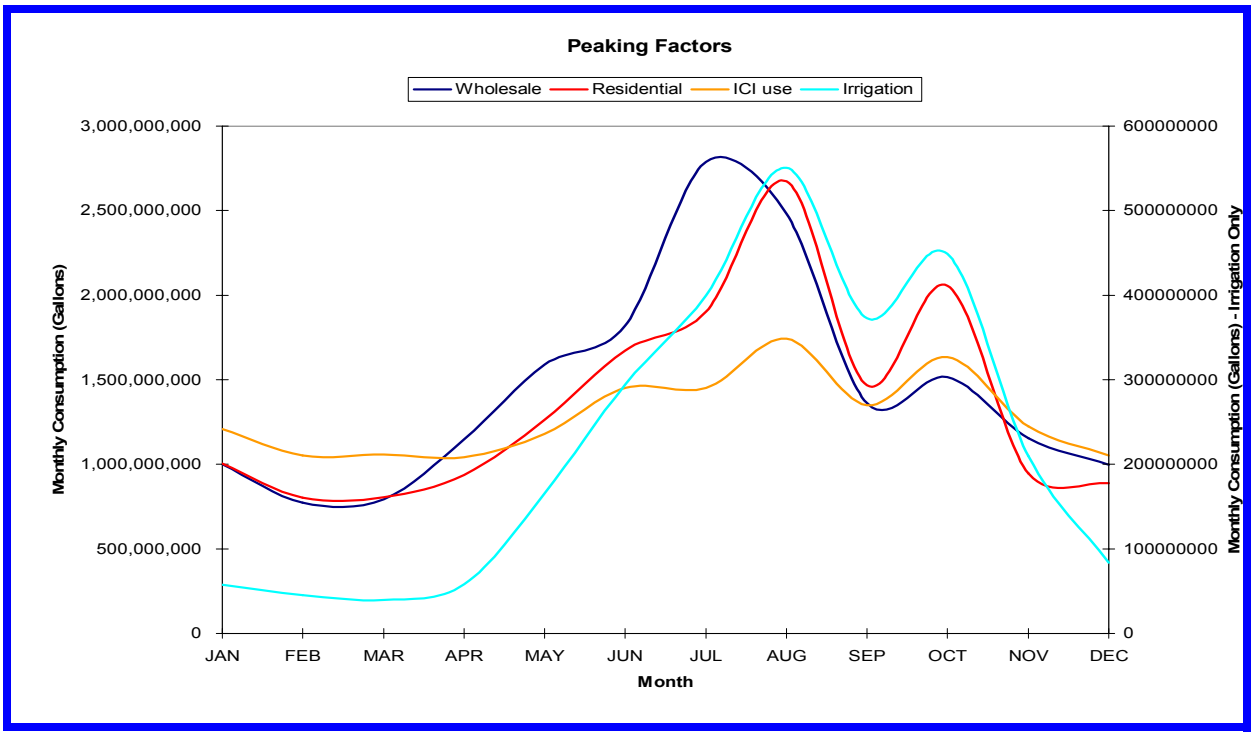

Figure 1.3. Peak demands associated with each of the different rate classes.

30 TAC 288.2(a)(1)(I)

1.7 Reservoir Systems

TRWD, as Fort Worth's raw water supplier, is responsible for operations of the reservoir system described in the Utility Profile of this Plan. TRWD coordinates its Operations Plan with all of its water customers and provides recommendations for the operations of regional treatment systems.

30 TAC 288.2(a)(1)(J)

1.8 Implementation and Enforcement

BMP 3

The City has an existing ordinance which prohibits wasting water. It is considering more detailed restrictions, including hours-of-irrigation prohibition during different drought stages.

By the year 2015, the City will have in place all other actions described in this Water Conservation Plan. The annual audit will act as a guide for internal performance, and goals will be set each year following the audit. Implementation of the City's Water Conservation Plan is by resolution adopted by the Fort Worth City Council.

30 TAC 288.2(a)(1)(K)

1.9 Regional Water Planning Groups

The City has been working with the local Regional Water Planning Group (Region C) to help develop this group's example water conservation plan documents. This Water Conservation Plan has been discussed with Regional Water Planning Group consultants and is consistent with their methodology and structure. A

letter documenting that a copy of the Water Conservation Plan sent to the Chair of the Region C Water Planning Group is attached in Appendix A.

30 TAC 288.5(2)(A-D)

Section 2. Additional Conservation Efforts

30 TAC 288.2(a)(2)(A)

2.0 Leak Detection and Repair

The current leakage detection program uses state-of-the-art technologies and techniques to search for leaks. In addition to customer and field operations visual leakage reports, the City utilizes acoustic leak-noise detectors to target suspected leaks and correlators to define leak locations.

Another major part of the City's ongoing leak-detection program is the integration of Geographical Information System (GIS) tools to analyze the system down to the individual meter. This data is used as a proactive tool to determine and assess the under-registration of meters and to assess areas of high and low usage.

In addition, within the next five years, the City will pilot District Metered Areas (DMAs) which will act as current Best Management Practice leakage control zones. DMAs are discrete metered areas within the distribution system, usually supplying 1,000 to 3,000 properties.

The leakage detection and repair studies will be used to evaluate the correct level of expenditure for leakage detection and repair programs as well as an economic level of leakage. Performance measures will be developed against the baseline values so that there is accountability and transparency within the system. These performance indicators include real losses (leakage) and Infrastructure Leakage Index (ILI). The City uses these performance indicators in preference to gpcd because they are not affected as significantly by climatic variations. The ILI is the ratio of the actual leakage within a utility system and the theoretical lowest possible level of leakage. Therefore - an ILI of 1.0 would mean that the system is being run perfectly and the losses from the pipes equal the theoretical lowest level of leakage.

2.0.1 Real Losses (Leakage)

Leakage from the system is generally regarded as a real loss. This is currently grouped in with all other non-revenue water in most system audits. To more accurately define real losses, specific performance measures must be developed. These should be related to real data such as miles of main or number of services so that they can be analyzed year to year.

Initial recommendations for real loss performance indicators are:

- Gallons per connection per day;
- Gallons per connection per day per pounds per square inch (psi);
- Infrastructure Leakage Index (ILI).

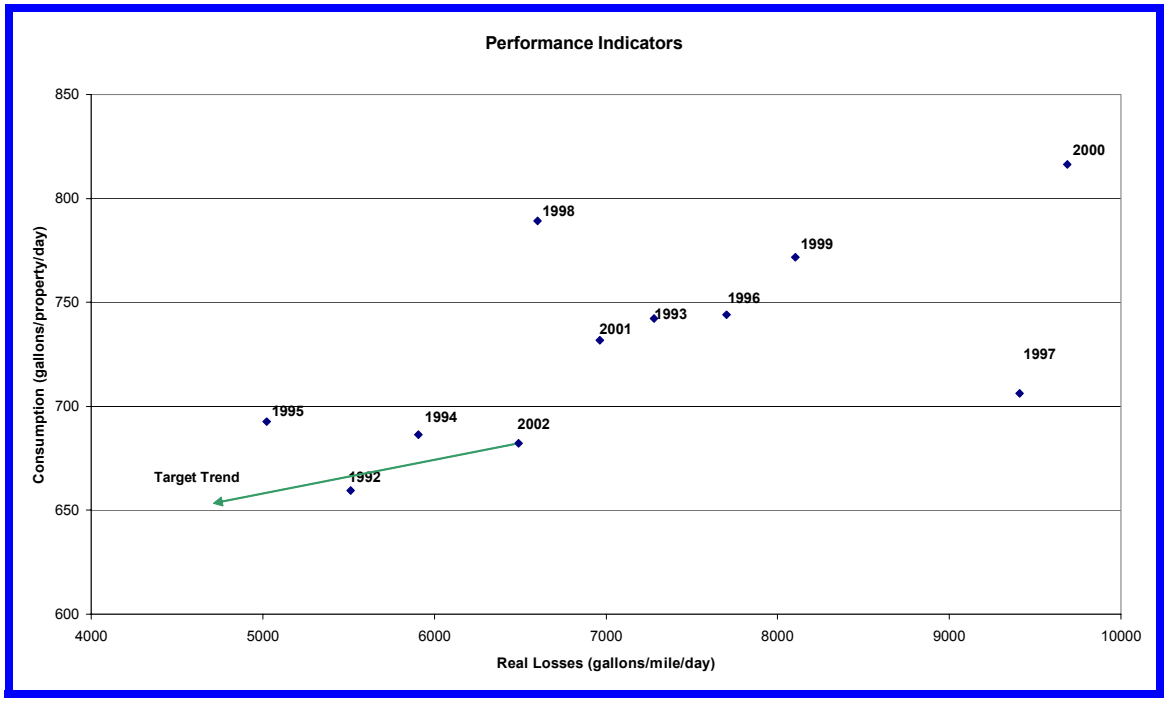

Figure 1.4. Fort Worth Consumption Performance Indicators (1992 to 2002).

2.0.2 Infrastructure Leakage Index (ILI)

The Infrastructure Leakage Index (ILI) is a more complex calculation of the theoretical lowest leakage possible divided by existing calculated leakage. This is developed as a unique value for every city and includes the distance from the curb stop to the meter boxes, the pressure in the system, and the number of service lines or connections per mile of main.

Within Fort Worth, the theoretical lowest leakage is approximately 3 million gallons per day. This is the theoretical lowest leakage currently possible with the existing infrastructure and service connection density.

Fort Worth has an ILI of approximately 5.5, which means that theoretically the leakage could be reduced 5.5 times before reaching the lowest possible value. This puts Fort Worth in the average zone of ILIs as shown in Figure 1.5.

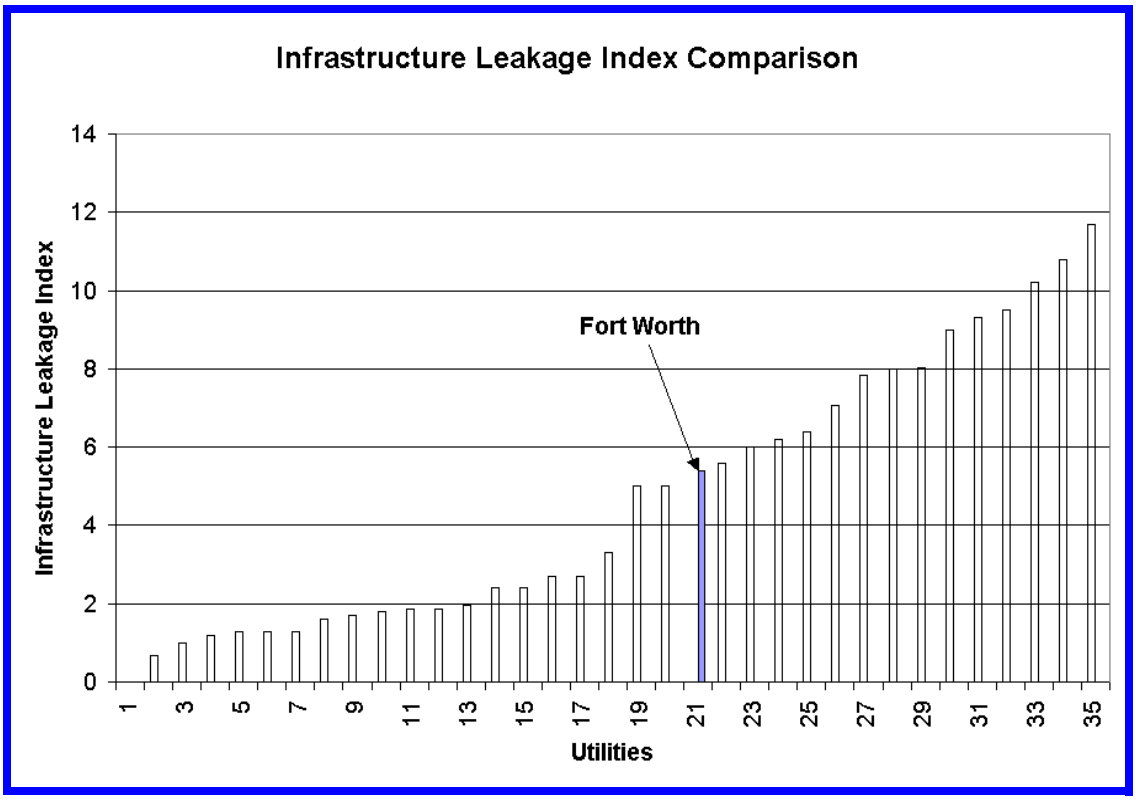

Figure 1.5. Infrastructure Leakage Index comparisons.

All leak management improvements will result in reduction of non-revenue (unaccounted-for) water loss reported in the annual water audit.

30 TAC 288.2(a)(2)(B)

2.1 Record Management System

The City has an effective record management system in place with its existing billing system and the annual statistical report. This system includes data analysis of additional subclasses beyond the four traditional customer classes.

30 TAC 288.2(a)(2)(C)

2.2 Wholesale Water Supply

BMP 14

Each of the City's wholesale customers is contractually obliged to develop and implement a water conservation plan or conservation measures using the applicable requirements of TCEQ Water Conservation Plans, Drought Contingency Plans, Guidelines and Requirements, Texas Administrative Code 30 TAC Chapter 288.a.2.C. The City has sent a copy of its Water Conservation and Drought Contingency plans to each of its wholesale customers to aid with the development of their plans. Further information regarding wholesale customers is detailed in Section 3.

30 TAC 288.2(a)(3)(B,C)

2.3 Water-Conserving Plumbing Fixtures

BMP 4,5,6

The City complies with the U.S. Energy Policy Act of 1992 (Public Law 102-486, 106 Stat. 2776, 102D Congress, Oct. 24, 1992), which includes requirements for maximum water use allowed for toilets, urinals, showerheads, and faucets.

30 TAC 288.2(a)(3)(D)

2.4 Wastewater and Gray Water

BMP 16,19

Residential wastewater and gray water use (i.e., recycling water within the home using a dual plumbing system) has been evaluated by the Region C Water Planning Group and was determined at this time not to be a cost-effective conservation strategy.

Regional wastewater reuse has been deemed to be cost-effective and is being evaluated both by the City's wholesale supplier (Tarrant Regional Water District) and by the City itself. Future updates of the Conservation Plan will detail how wastewater reuse projects will be implemented.

30 TAC 288.2(a)(3)(E)

2.5 Pressure Control and Pressure Reduction

The City will study pressure control in pilot zones within the city limits over the next five years. This will be conducted in combination with the water-loss control measures developed within the district metered areas. Implementation will be discussed in the next update of the plan.

30 TAC 288.2(a)(3)(F)

2.6 Landscape Water Management

BMP 8,9,10, 11,12,20

The existing City landscape ordinance will be evaluated to review its water use efficiency potential. This will include incentives for using native and adapted flora which require less water. The City is also considering ordinances to promote rain, break, and freeze sensors on new irrigation systems. This may include a rebate program for existing systems.

By 2008, the City will conduct a pilot program to assess different water-saving methodologies and technologies at City athletic fields and golf courses. The best, most effective methods will be considered for all appropriate City facilities. Once it has been determined that these techniques are effective, they will be presented to private golf courses and to customers with significant irrigated areas.

30 TAC 288.2(a)(3)(G)

2.7 Yearly Audit

BMP 1

The City will continue to conduct a yearly water system audit using the IWA standard water audit methodology to monitor the effectiveness and efficiency of the Water Conservation Plan.

2.8 Conservation Programs for Industrial, Commercial, and Institutional Accounts

BMP 21

Water system audits and cooling audits will be the first conservation measures developed for and applied to these customers. The first pilot programs related to these users will be in place by 2010.

30 TAC 288.2(a)(3)(H)

2.9 Miscellaneous Practices, Methods, Techniques

Other practices, methods, and techniques — in addition to those outlined in this document — are shown in the details of the City's goals for Best Management Practices as developed by the Texas Water Development Board. These are outlined in Tables 1-3 and 1-4.

2.9.1 Internal City Water Conservation Effort

The City will implement water conservation measures internally within City Hall and a number of its other buildings and parks within the next five-year planning period. This will include retrofits of toilets, faucets, and showerheads, as well as analysis of water savings from these measures.

The City will also set up an internal water conservation user group involving all relevant departments to oversee and evaluate the progress of the Water Conservation Plan.

2.9.2 Rainwater Harvesting and Condensate Reuse

BMP 18

Regional Water Planning Group C has advised the City that this is not economically viable, therefore this Best Management Practice is not currently being evaluated.

30 TAC
288.5

Section 3. Wholesale Water Suppliers

30 TAC
288.5(1)(A)

3.1 Wholesale Customer Information

Most of the relevant data for this section is described in the previous sections with relevance to 30 Texas Administrative Code (TAC) Chapter 288.2 - Municipal Water Suppliers.

A copy of the City of Fort Worth Municipal Retail Water Conservation Plan will be forwarded to each wholesale customer each time the plan is updated. The wholesale service area includes 29 customers which adjoin the Fort Worth city boundaries. The overall locations of the wholesale customers are shown on Figure 1.6 below.

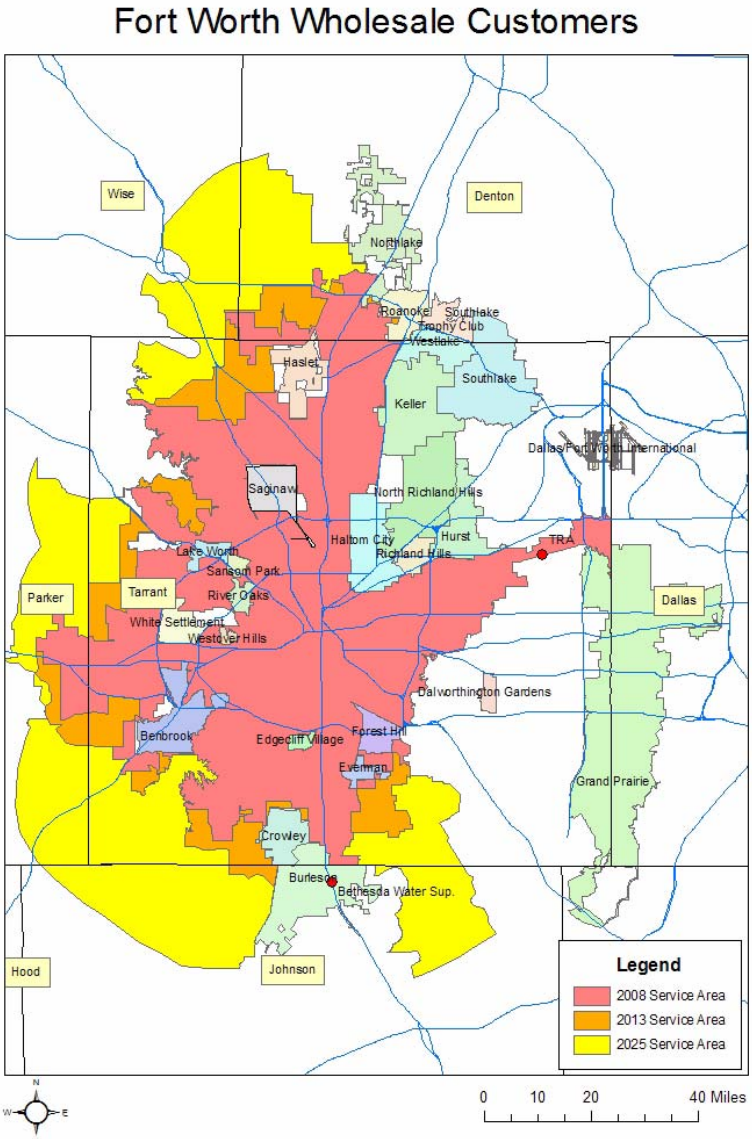

Figure 1.6 City of Fort Worth wholesale customer locations.

The customers affected by this plan are shown on the following table. The most recent water use records of each of the wholesale customers are also annotated in this table.

Table 1-10: Wholesale Customers

Wholesale Customer	2002 Usage (MG)	Wastewater Customer
Benbrook	0.1	yes
Bethesda Water Supply	383.6	no
Burleson	1,065.6	yes
Crowley	148.1	yes
DFW Airport	368.4	no
Dalworthington Gardens	136.2	no
Edgecliff Village	128.0	yes
Everman	31.5	yes
Forest Hill	508.1	yes
Grand Prairie	538.5	no
Haltom City	1,940.2	yes
Haslet	69.7	no
Hurst	1,830.5	yes
Keller	1,784.1	no
Lake Worth	116.5	yes
Northlake	143.1	no
North Richland Hills	2,929.1	yes
Richland Hills	228.6	yes
River Oaks	0.0	yes
Roanoke	193.2	no
Saginaw	718.3	yes
Sansom Park	0.0	yes
Southlake	2,835.7	no
TRA	0.0	yes
Trophy Club MUD #1	418.9	no
Westlake	147.4	no
Westover Hills	228.1	yes
Westworth Village	62.8	yes
White Settlement	372.3	yes

30 TAC 288.5(1)(B,C)

3.2 Conservation Goals

The conservation goals as outlined in Section 1.1 of this Water Conservation Plan are intended as guides for the wholesale customers. When existing contracts are renewed, requirements for implementation of water conservation plans will be discussed and incorporated into the respective wholesale customer contracts.

The City encourages each wholesale customer to develop and implement conservation plans which reduce water use at least in line with or within 10% of those developed by Fort Worth. The basis for the development of these goals is that the City does not expect wholesale customers to implement conservation water saving plans to exceed those developed by itself. The City does, however, expect each wholesale customer to voluntarily reduce its water use through conservation practices. The targets in Table 1-11 below are recommended for each wholesale customer.

Table 1-11: Wholesale Customer Targets

	Total GPCD	Residential GPCD	Unaccounted-for Water*
By 2010	190	93	115*
By 2015	180	88	110*

* *Unaccounted-for water targets are based on the new AWWA water audit practices which approve the performance indicator for water losses as gallons lost per connection per day. This includes real and apparent losses. The commonly used percentage is not recommended as it is too variable depending on usage. These are guidelines and are related to the average wholesale customer in a year of average rainfall. These are voluntary guidelines*

30 TAC 288.5(1)(D,E,F)

3.2 Measurement, Monitoring, and Metering

The City will keep a database of this information for each wholesale customer and will continue with its program of metering and recording all wholesale customers' usage at point of sale. The City already has an ongoing program of proactive leak detection and meter testing and replacement to improve the level of service and cost of service to both retail and wholesale customers.

30 TAC 288.5(1)(G)

3.3 New Wholesale Contracts

The City requests that each wholesale customer provide copies of their water conservation plan and required water system audit (as required by the Texas Water Development Board water audit reporting requirement as specified by House Bill 3338). This will be required in any new contracts developed with wholesale customers as specified in 30 TAC Chapter 288.

30 TAC 288.5(1)(H)

3.4 Reservoir Operations Plan

Tarrant Regional Water District manages and operates all of the reservoirs supplying water to the City, with the exception of Lake Worth, which the City owns and operates.

30 TAC 288.5(1)(I)

3.5 Implementation and Enforcement

A copy of the resolution indicating official adoption of this Water Conservation Plan is attached to this document.

Section 4: Coordination

30 TAC 288.5(1)(J)

4.0 Coordination with RWPG, TRWD, and Wholesale Customers

Appendix A is a copy of a letter sent to the chair of the Region C Water Planning Group along with this Water Conservation Plan.

Appendix B includes copies of letters sent to each of the City's wholesale customers along with copies of this Water Conservation Plan.

Appendix C is a copy of a letter sent to the Tarrant Regional Water District along with this Water Conservation Plan.

Wholesale customers are requested to send a draft of their ordinances and other regulations implementing their water conservation plans to the City of Fort Worth Water Department.